FLWEMS Paramedic Medication Information For:

PROCAINAMIDE HYDROCHLORIDE

(Pronestyl)

(proh-**KAYN**-ah-myd)

Pregnancy Category

C Apo-Procainamide* Procan SR* Procanbid Pronestyl Pronestyl-SR (Rx)

Classification

Antiarrhythmic, class IA

See Also

See also *Antiarrhythmic Agents*.

Action/Kinetics

Produces a direct cardiac effect to prolong the refractory period of the atria and to a lesser extent the bundle of His-Purkinje system and ventricles. Large doses may cause AV block. Some anticholinergic and local anesthetic effects. Onset: PO, 30 min; IV, 1-5 min. Time to peak effect, PO: 90-120 min; IM, 15-60 min; IV, immediate. Duration: 3 hr. t1/2: 2.5-4.7 hr. Therapeutic serum level: 4-8 mcg/mL. Protein binding: 15%. From 40% to 70% excreted unchanged. Metabolized in the liver (16%-21% by slow acetylators and 24%-33% by fast acetylators) to the active N-acetylprocainamide (NAPA); has antiarrhythmic properties with a longer half-life than procainamide.

Uses

Documented ventricular arrhythmias (e.g., sustained ventricular tachycardia) that may be life threatening in clients where benefits of treatment clearly outweigh risks. Antiarrhythmic drugs have not been shown to improve survival in clients with ventricular arrhythmias.

Contraindications

Hypersensitivity to drug, complete AV heart block, lupus erythematosus, torsades de pointes, asymptomatic ventricular premature contractions. Lactation.

Special Concerns

There is an increased risk of death in those with non-life-threatening arrhythmias. Although used in children, safety and efficacy have not been established. Use with extreme caution in clients for whom a sudden drop in BP could be detrimental, in CHF, acute ischemic heart disease, or cardiomyopathy. Also, use with caution in clients with liver or kidney dysfunction, preexisting bone marrow failure or cytopenia of any type, development of first-degree heart block while on procainamide, myasthenia gravis, and those with bronchial asthma or other respiratory disorders. May cause more hypotension in geriatric clients; also, in this population, the dose may have to be decreased due to age-related decreases in renal function.

Side Effects

Body as a whole: Lupus erythematosus-like syndrome especially in those on maintenance therapy and who are slow acetylators. Symptoms include arthralgia, pleural or abdominal pain, arthritis, pleural effusion, pericarditis, fever, chills, myalgia, skin lesions, hematologic changes. *CV:* Following IV use: Hypotension, *ventricular asystole or fibrillation, partial or complete heart block.* Rarely, second-degree heart block after PO use. *GI:* N&V, diarrhea, anorexia, bitter taste, abdominal pain. *Hematologic:* Thrombocytopenia, *agranulocytosis* neutropenia. *Rarely, hemolytic anemia. Dermatologic:* Urticaria, pruritus, angioneurotic edema, flushing, maculopapular rash. *CNS:* Depression, dizziness, weakness, giddiness, psychoses, hallucinations. *Other:* Granulomatous hepatitis, weakness, fever, chills.

Laboratory Test Alterations

May affect LFTs. False + ↑in serum alkaline phosphatase. Positive ANA test. High levels of lidocaine and meprobamate may inhibit fluorescence of procainamide and NAPA.

Overdose Management

Symptoms: Plasma levels of 10-15 mcg/mL are associated with toxic symptoms. Progressive widening of the QRS complex, prolonged QT or PR intervals, lowering of R and T waves, increased AV block, increased ventricular extrasystoles, *ventricular tachycardia or fibrillation. IV overdose may result in hypotension, CNS depression, tremor, respiratory depression. Treatment:* Induce emesis or perform gastric lavage followed by

administration of activated charcoal. To treat hypotension, give IV fluids and/or a vasopressor (dopamine, phenylephrine, or norepinephrine). Infusion of 1/6 molar sodium lactate IV reduces the cardiotoxic effects. Hemodialysis (but not peritoneal dialysis) is effective in reducing serum levels. Renal clearance can be enhanced by acidification of the urine and with high flow rates. A ventricular pacing electrode can be inserted as a precaution in the event AV block develops.

Drug Interactions
Acetazolamide / ↑Procainamide effect R/T ↓kidney excretion *Anticholinergic agents, atropine* / Additive anticholinergic effects *Antihypertensive agents* / Additive hypotensive effect *Cholinergic agents* / Anticholinergic activity of procainamide antagonizes effect of cholinergic drugs *Cimetidine* / ↑Procainamide effect R/T ↑bioavailability *Disopyramide* / ↑Risk of enhanced prolongation of conduction or depression of contractility and hypotension *Ethanol* / Effect of procainamide may be altered, but because the main metabolite is active as an antiarrhythmic, specific outcome not clear *Henbane leaf* / ↑Anticholinergic effects *Kanamycin* / ↑Kanamycin-induced muscle relaxation *Lidocaine* / Additive cardiodepressant effects *Magnesium salts* / ↑Magnesium-induced muscle relaxation *Neomycin* / ↑Neomycin-induced muscle relaxation *Propranolol* / ↑Serum procainamide levels *Quinidine* / ↑Risk of enhanced prolongation of conduction or depression of contractility and hypotension *Ranitidine* / ↑Procainamide effect R/T ↑ bioavailability *Sodium bicarbonate* / ↑Procainamide effect R/T ↓kidney excretion *Succinylcholine* / ↑ Succinylcholine-induced muscle relaxation *Trimethoprim* / ↑Procainamide effect R/T ↑serum levels

How Supplied
Capsule: 250 mg, 375 mg, 500 mg; *Injection:* 100 mg/mL, 500 mg/mL; *Tablet:* 250 mg, 375 mg, 500 mg; *Tablet, extended release:* 250 mg, 500 mg, 750 mg, 1000 mg

Dosage
•Capsules, Extended-Release Tablets, Tablets
Adults, initial: 50 mg/kg/day in divided doses q 3 hr. Usual, 40-50 kg: 250 mg q 3 hr of standard formulation or 500 mg q 6 hr of sustained-release; 60-70 kg: 375 mg q 3 hr of standard formulation or 750 mg q 6 hr of sustained-release; 80-90 kg: 500 mg q 3 hr of standard formulation or 1 g q 6 hr of sustained-release; over 100 kg: 625 mg q 3 hr of standard formulation or 1.25 g q 6 hr of sustained-release. Pediatric: 15-50 mg/kg/day divided q 3-6 hr (up to a maximum of 4 g/day).

•Procanbid Extended-Release Tablets *Life-threatening arrhythmias.*
500 or 1,000 mg b.i.d.

•IM *Ventricular arrhythmias.*
Adults, initial: 50 mg/kg/day divided into fractional doses of 1/8-1/4 given q 3-6 hr until PO therapy is possible. Pediatric: 20-30 mg/kg/day divided q 4-6 hr (up to a maximum of 4 g/day).
Arrhythmias associated with surgery or anesthesia.
Adults: 100-500 mg.

•IV , Initial loading infusion: 20 mg/min (for up to 25-30 min). Maintenance infusion: 2-6 mg/min. Pediatric, initial loading dose: 3-5 mg/kg/dose over 5 min (maximum of 100 mg); maintenance: 20-80 mcg/kg/min continuous infusion (maximum of 2 g/day).

END OF INFORMATION – NOTHING FOLLOWS